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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,053	07/31/2003	Vivck Kashyap	AUS920030078US1	3491
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IBM CORP (YA) C/O YEE & ASSOCIATES PC P.O. BOX 802333 DALLAS, TX 75380			EXAMINER SCUDERI, PHILIP S	
			ART UNIT	PAPER NUMBER
			2153	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/631,053	Applicant(s) KASHYAP ET AL.	
	Examiner Philip S. Scuderi	Art Unit 2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 9/19/2007 has been entered.

Response to Arguments

Applicant's arguments filed 9/19/2007 have been fully considered and they are persuasive.

Applicant argues that Haggerty (U.S. Patent No. 6,331,983) does not meet the claimed invention(s) because Haggerty teaches switches that create, destroy, and manage multicast groups, whereas the claimed invention is directed to end nodes that perform these functions.

This argument is deemed persuasive. Accordingly, the rejections set forth in the last office action have been withdrawn. However, upon further consideration, new grounds of rejection are presented below in view of newly discovered prior art.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-23 are rejected under 35 U.S.C. 102(a) as being anticipated by InfiniBand (InfiniBand™ Architecture Release 1.1, 11/6/2002).

InfiniBand is an architecture for interconnecting processor nodes and I/O nodes to form a system area network (see InfiniBand at pp. 54). InfiniBand uses endnodes that are final destinations for packets and that are not switches or routers (see InfiniBand at pp. 630). The endnodes can host a Subnet Manager as shown in figure 142 (see InfiniBand at pp. 630). The Subnet Managers include a Subnet Administration function (see InfiniBand at pp. 781).

InfiniBand supports multicast groups (see InfiniBand at pp. 101). A node joins a multicast group through a management action wherein the node supplies the Subnet Manager/Administration node with the LID for each port that will participate (see InfiniBand at pp. 101, 103).

The multicast groups are created “by the multicast management entity before a join can be successful” (see InfiniBand at pp. 103). “The multicast management entity ... determines whether this multicast group is in operation within another subnet ... to determine whether the create is allowed or not” (see InfiniBand at pp. 104).

When an InfiniBand switch receives a multicast packet they “replicate the packet and send it out to each of the designated ports except the arrival port” (see InfiniBand at pp. 102). “In this fashion, each cascaded switch replicates the packet such that the packet arrives only once at every subscribed endnode” (see InfiniBand at pp. 102).

A node leaves a multicast group through a management action similar to the join action (see InfiniBand at pp. 101). When an application leaves a multicast group it is “removed as a target for the multicast group” (see InfiniBand at pp. 105). “When an (administrative) application deems there

is no need for a multicast group or there are no other endnodes participating in a multicast group, the multicast group may be deleted” (see InfiniBand at pp. 105).

As to claims 1, 14, and 22, InfiniBand teaches a method, apparatus, and product for managing multicast groups in an InfiniBand system area network the method comprising the step of, the apparatus comprising means for, and the product comprising instructions for:

end nodes in the InfiniBand system area network being final destinations for packets (see InfiniBand at pp. 630);

end nodes not including switches or routers, wherein packets are not routed through the end nodes (see InfiniBand at pp. 630);

receiving, by a Subnet Administration in a first InfiniBand end node, a join request for a second InfiniBand end node for joining a multicast group, where in the second end node is connected to a first switch and wherein the join request is a send-without-receive request, and wherein the first InfiniBand end node is included within the InfiniBand system area network (see InfiniBand at pp. 101 (“A node joins and leaves a multicast group through a management action ...”), 102, 103, 630, 781).

determining whether the multicast group exists (see InfiniBand at pp. 104 (“The multicast management entity ... determines whether this multicast group is in operation within another subnet ... to determine whether the create is allowed or not”));

if the multicast group does not exist, creating, by the Subnet Administration in the first InfiniBand node, the multicast group and routing the first switch to discard all packets for the multicast group (see InfiniBand at pp. 101-104).

As to claims 2 and 15, InfiniBand teaches that the step of creating includes assigning an InfiniBand multicast local identifier (MLID) to the multicast group, and further wherein the multicast group is not created by a switch (see InfiniBand at pp. 104 (“The multicast management entity maps the multicast group address to a multicast LID”)).

As to claims 3 and 16, routing the first switch inherently includes inserting an entry for the multicast group in a multicast routing data structure in the first switch (see InfiniBand at pp. 102, 104).

As to claim 4, InfiniBand teaches that the multicast group identifier is indexed by an InfiniBand multicast local identifier (MLID) (see InfiniBand at pp. 101-104).

As to claim 5, InfiniBand teaches that switches only replicate multicast packets to “every subscribed endnode” (see InfiniBand at pp. 102). Newly created groups inherently indicate that packets are to be discarded because they do not yet have subscribed endnodes.

As to claims 6 and 17, InfiniBand teaches, responsive to a join request from a receiving end node, updating at least one multicast routing table for at least one switch in the system area network to route packets for the multicast group to the receiving end node (see InfiniBand at pp. 101-103).

As to claim 7, InfiniBand teaches:

receiving a leave request from a third end node for leaving the multicast group (see InfiniBand at pp. 101, 105);

determining whether a single end node remains in the multicast group (see InfiniBand at pp. 105 (“When an (administrative) application deems there is no need for a multicast group or there are no other endnodes participating in a multicast group, the multicast group may be deleted”)); and

if a single end node remains in the multicast group, routing a switch closes to the single end node to discard all packets for the multicast group (see InfiniBand at pp. 102).

As to claims 8, 18, and 23, teaches a method, apparatus, and product for managing multicast groups in an InfiniBand system area network the method comprising the step of, the apparatus comprising means for, and the product comprising instructions for:

end nodes in the InfiniBand system area network being final destinations for packets (see InfiniBand at pp. 630);

end nodes not including switches or routers, wherein packets are not routed through end nodes (see InfiniBand at pp. 630);

receiving, by a Subnet Administration in a first InfiniBand end node, a leave request from a second end node for leaving a multicast group, wherein the multicast group has a first member at a third end node connected to a first switch, and wherein the multicast group is identified using an InfiniBand system area network (see InfiniBand at pp. 101, 105);

determining whether a single end node remains in the multicast group (see InfiniBand at pp. 105 (“When an (administrative) application deems there is no need for a multicast group or there are no other endnodes participating in a multicast group, the multicast group may be deleted”)); and

if a single end node remains in the multicast group, routing, by the Subnet Administration in the first InfiniBand end node, the first switch to discard all packets for the multicast group (see InfiniBand at pp. 102).

As to claims 9 and 19, InfiniBand teaches that the first member is a send-without-receive member (see InfiniBand at pp. 102).

As to claims 10 and 20, routing the first switch inherently includes inserting an entry for the multicast group in a multicast routing data structure in the first switch (see InfiniBand at pp. 102, 104).

As to claim 11, InfiniBand teaches that the multicast group identifier is indexed by an InfiniBand multicast local identifier (MLID) (see InfiniBand at pp. 101-104).

As to claim 12, InfiniBand teaches that switches only replicate multicast packets to “every subscribed endnode” (see InfiniBand at pp. 102). Newly created groups inherently indicate that packets are to be discarded because they do not yet have subscribed endnodes.

As to claims 13 and 21, InfiniBand teaches, responsive to a join request from a receiving end node, updating at least one multicast routing table for at least one switch in the system area network to route packets for the multicast group to the receiving end node (see InfiniBand at pp. 101 (“multicast group ... information is distributed to the switches”).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip S. Scuderi whose telephone number is (571) 272-5865. The examiner can normally be reached on Monday-Friday 9:00 am - 5:30 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton B. Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Philip S. Scuderi/



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